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Koji Yanase

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24956

7590

10/06/2006

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.  
1800 DIAGONAL ROAD  
SUITE 370  
ALEXANDRIA, VA 22314

EXAMINER

EBIRIM, EMEKA

ART UNIT

PAPER NUMBER

2166

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



<b>Office Action Summary</b>	<b>Application No.</b> 10/784,212	<b>Applicant(s)</b> YANASE ET AL.	
	<b>Examiner</b> Emeka Ebirim	<b>Art Unit</b> 2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☒ Claim(s) 14, 15, 21 and 23-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>02/24/2004</u> . | 6) <input type="checkbox"/> Other: _____  |



## **DETAILED ACTION**

### ***Claim Status***

1. The application has been examined and claims 14-26 are rejected as detailed below and are pending in this office action.

### ***Claim Objections***

2. Claims 14, 15, 21, 23-25 objected to because of the following informalities:

Claim 14 recites the limitation "said N columns" in lines 13 and 19.

Claim 15 recites the limitation "said N columns" in lines 12 and 18.

Claim 21 recites the limitation "said N columns" in lines 14 and 20.

Claim 23 recites the limitation "said N columns" in lines 14 and 20.

Claim 24 recites the limitation "said N columns" in lines 13 and 19.

Claim 25 recites the limitation "said N columns" in lines 13 and 19.

There are insufficient antecedent basis for these limitations in the claims..

Appropriate correction is required.

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### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application with useful, concrete and tangible result.



4. Claims 19, 24-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 19 not limited to tangible embodiments. This claim does not indicate use of hardware on which the software runs to perform the steps recited in the body of the claim.

Claims 24-26 are not limited to tangible embodiments. These claims appear to constitute solely software per se without any practical application. They are not statutory because they merely recite a number of computing steps without producing any tangible result and/or being limited to a practical application. Software or program can be stored on a medium and/or executed by a computer. As such, the claim is not limited to statutory subject matter and is therefore non-statutory.

To perform a physical transformation, the claimed invention must transform an article of physical object into a different state or thing. Transformation of data is not a physical transformation. A useful, concrete, and tangible results must be either specifically recited in the claim or flow inherently therefrom. To be useful the claimed invention must establish a specific, substantial, and credible utility. To be concrete the claimed invention must be able to produce reproducible results. To be tangible the claimed invention must produce a practical application or real world result.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:



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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 14-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Pub No 2002/0194157 to Zait et al (hereinafter Zait).

Claim 14.

Zait discloses:

A database processing method, comprising the steps of:

partitioning a database table into a plurality of data storage areas for storing the table in an N-dimensional arrangement (where  $N > 1$ ) by utilizing a key range partitioning or a hash partitioning (multiple-dimension partitioning) [hash partitioning, range partitioning, Para 0016, 0035];

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand [multiple partitioning keys, Para 0030, 0034, Fig 1-2];

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns [Para 0029] ;



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storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges into a dictionary [partitioning metadata (dictionary), 0031, 0033]; and

searching one of said data storage areas identified as the scope of a search, the identified data storage area being specified by key values corresponding to said N columns included in received data, referring to said dictionary (select statements with specific range) [Para 0033].

Claim 15.

Zait discloses:

A database processing method, comprising the steps of:  
partitioning a database table into a plurality of data storage areas for storing the table in an N-dimensional arrangement (where  $N > 1$ ) by using a key range partitioning (multiple-dimension partitioning) [hash partitioning, range partitioning, Para 0016, 0035];

determining columns of said database table to each of which a plurality of key ranges are allocated, wherein each of said columns corresponds to one of the N dimensions, and each of said columns is provided with said plurality of key ranges beforehand [multiple partitioning keys, Para 0030, 0034];

allocating one of said data storage areas for each of said key ranges which are assigned to each of said N columns [Para 0029, 0034];



storing partition definition information defining how each of said data storage areas is allocated to one of the key ranges into the same dictionary on a Database Management System [partitioning metadata (dictionary), DBMS, 0031, 0033, 0040, Fig 1-2]; and

storing data to be inserted into one of said data storage areas specified by key values corresponding to said N columns included in the data to be inserted [Para 0029].

Claim 16.

Zait Discloses:

A database processing method, comprising the steps of:

defining a plurality of key ranges for each of as many as N columns of a database table [multiple partitioning keys, Para 0030, 0034, Fig 1-2];

receiving and analyzing a database definition information to allocate a data storage area for each of said key ranges which are assigned to each of said N columns [definition information (metadata), partitioning keys, query statements, inspect (analyze) Para 0032, 0033]; and

registering the analyzed database definition information defining how said data storage area is allocated to one of the key ranges into one dictionary (partitioning metadata associated with table) [Para 0031, 0032, 0033].

Claim 17.

Zait discloses the elements of claim 16 as above and furthermore it discloses



receiving and analyzing an SQL indicative of insertion of data into the database for storing the data to be inserted into said data storage area specified by key values corresponding to said N columns included in the data to be inserted [SQL, Para 0004, 0037].

Claim 18.

Zait discloses the elements of claim 16 as above and furthermore it discloses, wherein said registering step includes registering the partitioning boundary value for each of respective partitioning keys, the partitioning range number given for the partitioned range by the partitioning boundary value, and the storage area order number of the storage area of data constituted of partitioning the table [hash value (partitioning boundary value), stored, Para 0012, (partitioning metadata associated with table) Para 0031, 0032, 0033], and

wherein the method further comprises the step of for determining said partitioning range number for each of respective partitioning keys from key values corresponding to said N columns included in data to be inserted and said partitioning boundary value of the data to be inserted, to determine a plurality of said storage area numbers as candidates, and then to insert the data to be inserted to the area of said storage area order number picked up as a common candidate with respect to each partitioning key [Para 0024, 0026].

Claim 19.



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Zait discloses:

A database processing apparatus, comprising:

a command analyzer for receiving and analyzing database definition information that includes a plurality of partitioning keys for partitioning a table having the database and partitioning boundary values for each of partitioning keys, then defining a plurality of key ranges for each of as many as N columns of the database table with which said partitioning keys are associated by using said partitioning boundary values, and allocating a data storage area for each of said key ranges which are assigned to each of said N columns [definition information (metadata), partitioning keys, query statements, inspect (analyze) Para 0032, 0033, 0012];

a dictionary for storing the definition information that defines a database [partitioning metadata (dictionary), 0031, 0033]; and

a dictionary manager for storing into said dictionary the information including partitioning definition information of the database table from said analyzed database definition information, said partitioning definition information defining how said data storage area is allocated to one of the key ranges [partitioning metadata (dictionary), 0031, 0033].

#### Claim 20.

Zait discloses the elements of claim 19 as above and furthermore it discloses, wherein said command analyzer receives and analyzes an SQL indicative of data insertion to the database [SQL, Para 0004, 0029, 0037]; and



wherein the database processing apparatus further comprises a storage area specification component for receiving key values corresponding to said N columns included in the data to be inserted, for receiving the partitioning definition information of said table from said dictionary through said dictionary manager, and for determining a storage area uniquely determined on the basis of a plurality of partitioning keys of the data to be inserted and said partitioning definition information [partitioning key values, Para 0025, 0031, 0033].

7. Subject matter of claims 21-26 are rejected in the analysis above in claims 14-20 and these claims are rejected on that basis.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the accompanying PTO-892 form.



***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emeka Ebirim whose telephone number is 571-272-3994. The examiner can normally be reached on 8:30pm - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**KHANH B. PHAM**  
**PRIMARY EXAMINER**

Name: Emeka Ebirim  
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